National Institute of Environmental Health Sciences

Living with sea-level rise and climate change: A case study of the Netherlands

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Abstract:

Based on historical hindsight, this paper shows that sea-level rise has played a fundamental role in the development of the low-lying environment of the Netherlands. It was beneficial in morphological terms during the mid-Holocene, but from Roman times, it has been a threat to the coastal zone evolution and human habitation. Collective human response started to play a role in coastal evolution as early as the ninth century, while its influence started to become a major factor during the nineteenth and twentieth century. Throughout its history, Dutch society has always been receptive to new technologies, approaches, and policies in its dealings with the many water-related challenges. The success of concerted human response explains why the water boards were successful as the first democratic institutions in the Netherlands. Development of technology and increasing financial means (the Dutch Golden Age) gave rise to increasingly viable flood abatement measures and reclamation projects, which took place on increasingly larger scales. This culminated in large-scale works such as the closure of the Zuiderzee and the Delta Project in the twentieth century. During this project, a turning point in thinking emerged; while flood protection remained a top priority, human interventions were considered in a broader, more holistic context with natural values being weighed against socioeconomic interests. In the face of the challenges of the twenty-first century, policy and management approaches as well as science and technology approaches need to be adapted further in accordance to the principles of working with nature in a trans-disciplinary way. The success of this adaptation will to a large extent determine the viability of the Dutch society as a whole.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Extreme Weather Event, Sea Level Rise

Extreme Weather Event: Flooding

Geographic Feature:

resource focuses on specific type of geography

Ocean/Coastal

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Netherlands

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Intervention: ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type: ☑

format or standard characteristic of resource

Research Article

Resilience: ☑

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

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Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

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